UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,645	10/03/2000	Da-Shan Shiu	PA000472	6060

			EXAMINER
23696 7590 02/25/2004			LIU, SHUWANG

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

ART UNIT	' PAPER NUMBER
2634	9

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 November 2003</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9,13,14,16,21,31,32,34 and 35* is/are allowed.

6)☒ Claim(s) *1-8,10-12,15,17-20,22-30 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed on November 24, 2003, have been fully considered

but they are not persuasive. The Examiner has thoroughly reviewed Applicant's

arguments but firmly believes that the cited reference reasonably and properly meet the

claimed limitation as rejected.

       Applicant's argument –"The examiner has stated that Kawable contains an

address generator 320. .... The Applicant requests the Examiner to clarify if he is

referring to the CPU 302 in Figure 3? .... In any case, the Applicants assert that

Kawable does not contain an address generator ...."

       Examiner's response – As shown in figure 3, there are to blocks (CPU 302 and

Buffer RAM 301) to perform the transmission and the reception. It is well known that

the memory must have addresses for writing and reading and CPU has addresses in

corresponding to the memory addresses for writing and reading. Therefore, the CPU

performs the function of a address generator (for example, see column 9, lines 35- 38 of

US 6,668,343 in the cited reference). In this case, the structure of figure 10 is included

in the CPU where the 808 is the address generator (column 14, lines 43-49).

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed
publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3.   Claims 1, 3-8, 10-12, 18-20, 22-30 and 33 are rejected under 35 U.S.C. 102(a)

as being anticipated by Kawable (EP 0998052A, see IDS, paper #5).

As shown in figures 1, 2 and 5, Kawable discloses:

(1) regarding claim 1:

A buffer structure (203) for storing symbols received via a plurality of channels,

wherein each channel is associated with a particular time interval over which the

received symbols are subsequently processed, the buffer structure comprising:

a buffer (203) partitioned into a plurality of sections, wherein one section is

assigned to each channel and dimensioned to store symbols expected to be received

over the associated time interval; and

an address generator (302) coupled to the buffer and operative to provide

addresses for writing symbols to the assigned sections.

(2)regarding claim 3:

wherein each channel corresponds to a physical channel defined by W-CDMA

standard (column 4, lines 54-57).

(3)regarding claim 4:

A buffer structure for storing symbols received via a plurality of channels,

wherein each channel is associated with a particular time interval over which the

received symbols are subsequently processed, the buffer structure comprising:

a buffer (203) partitioned into a plurality of sections, one section for each

channel, wherein the plurality of sections are assigned to the plurality of channels

based on the associated time intervals; and

an address generator (302) coupled to the buffer and operative to provide

addresses for writing symbols to the assigned sections.

(4)regarding claim 5:

wherein each channel corresponds to a transport channel defined by W-CDMA

standard (column 4, lines 54-57).

(5) regarding claims 6 and 7:

wherein the time interval associated with each channel corresponds to a

transmission time interval (TTI) also defined by the W-CDMA standard (column 4, line

54-57, it is inherent that TTI is selected from a group consisting of 10 msec, 20 msec,

40 msec, and 80 msec according to the W-CDMA standard).

(6)regarding claim 8:

wherein the plurality of sections are assigned to the plurality of channels in

descending order of the associated time intervals (column 5, lines 10-33).

(7)regarding claim 10:

wherein the buffer is partitioned starting from an initial location and continuing

along a first direction of the buffer(column 5, lines 10-33).

(8)regarding claim 11:

wherein each section is defined starting from the initial location or the end of a

previous section (column 5, lines 10-33).

(9)regarding claim 12:

wherein each section is sized to store all symbols expected to be received

within the time interval associated with the channel to which the section is assigned

(column 5, lines 10-40).

(10) regarding claim 18:

A receiver unit operative to process symbols received via a plurality of channels

in a communication system, wherein each channel is associated with a particular time

interval over which the received symbols are subsequently processed, the receiver

unit comprising:

a channel processor (201) operative to process samples received for the

plurality of channels to provide symbols;

a buffer (203) coupled to the channel processor and operative to store the

symbols from the channel processor, wherein the buffer is partitioned into a plurality of

sections, one section for each channel, and wherein the plurality of sections are

assigned to the plurality of channels based on the associated time intervals; and

a data processor (202) coupled to the buffer and operative to retrieve symbols

for a particular traffic from an assigned section of the buffer and to process the

retrieved symbols.

(11) regarding claim 19:

wherein each channel corresponds to a transport channel defined by W-CDMA

standard, and wherein the time interval associated with each channel corresponds to

a transmission time interval (TTI) also defined by the W-CDMA standard (column 4,

line 54-57).

(12)regarding claim 20:

wherein the buffer is partitioned starting from an initial location and continuing

along a first direction of the buffer (column 5, lines 10-33).

(13)regarding claim 22:

wherein the symbols from the channel processor are stored to permutated

locations in the buffer to achieve a second de-interleaving (column 5, lines 10-33 and

column 10, lines 18-31).

(14)regarding claim 23:

wherein symbols for a particular traffic are retrieved from permutated locations

in the assigned section to achieve a first de-interleaving (215).

(15)regarding claim 24:

further comprising: an address generator (302) coupled to the buffer and

operative to provide addresses for writing symbols to the plurality of sections.

(15)regarding claim 25:

further comprising: a controller (401) coupled to the channel processor and the

data processor, the controller operative to direct writing of symbols to the plurality of

sections and reading of symbols from the plurality of sections.

(16)regarding claim 26:

further comprising: a decoder (510) coupled to the data processor and

operative to receive and decode symbols processed by the data processor.

(17)regarding claim 27:

A receiver unit comprising the channel processor, buffer, and data processor of

claim 18, and further operative to process a downlink data transmission in accordance

with W-CDMA standard (column 4, lines 54-57).

(18)regarding claim 28:

A receiver unit comprising the channel processor, buffer, and data processor of

claim 18, and further operative to process an uplink data transmission in accordance

with W-CDMA standard (column 4, lines 54-57).

(19)regarding claim 29:

A method for storing symbols received via a plurality of channels, wherein each

channel is associated with a particular time interval over which the received symbols

are subsequently processed, the method comprising:

identifying (201) the plurality of channels to be received and processed;

determining a time interval associated with each channel;

assigning (201) a plurality of sections of a buffer to the plurality of channels in

accordance with the associated time intervals; and

storing (203) symbols received from the plurality of channels to the plurality of

assigned sections.

(20)regarding claim 30:

wherein each channel corresponds to a transport channel defined by W-CDMA

standard, and wherein the time interval associated with each channel corresponds to

a transmission time interval (TTI) also defined by the W-CDMA standard (column 4,

lines 54-57).

(21)regarding claim 33:

wherein the plurality of sections are defined starting from an initial location and

continuing along a first direction of the buffer (column 5, lines 10-33).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 2 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kawable (EP0998052A, see IDS, paper #5) in view of Easton et al. (WO

9610873A, see IDS, paper #5)

Kawable discloses all of the subject matter as described above except for

operating as a circular buffer as recited in claim 2, maintaining a write pointer as

recited in claim 15,16 and 17.

However, QUALCOMM INC teaches a circuit buffer with a writer pointer for

writing the address for each section (page 14, lines 8-34, page 22, line 6-page 24, line

18, and figures 6-8).

It would be desirable to have more efficient method to control the reading and

writing from or to a buffer using pointer in a communication system. Therefore, it

would have been obvious to one of ordinary skill in the art at the time of the invention

to use a pointer as taught by QUALCOMM INC. in the system of Kawable in order to

provide more efficient management to access the data from buffer.

Allowable Subject Matter

6.   Claims 9, 13, 14, 16, 21, 31, 32, 34 and 35 are allowed.

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Shuwang Liu whose telephone number is (703) 308-

9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:
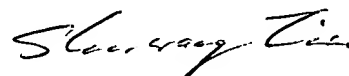
Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal

Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Technology Center 2600 Customer Service Office

whose telephone number is (703) 306-0377.

Shuwang Liu
Primary Examiner
Art Unit 2634

February 19, 2004